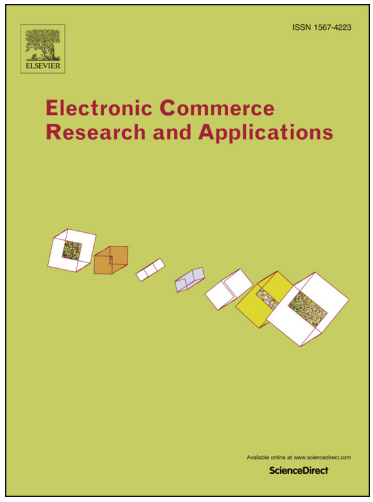
Accepted Manuscript



Embedding unstructured side information in product recommendation

Fatemeh Pourgholamali, Mohsen Kahani, Ebrahim Bagheri, Zeinab Noorian

PII: S1567-4223(17)30057-1
DOI: http://dx.doi.org/10.1016/j.elerap.2017.08.001
Reference: ELERAP 720

To appear in: *Electronic Commerce Research and Applications*

Received Date: 1 February 2017
Revised Date: 3 August 2017
Accepted Date: 3 August 2017

Please cite this article as: F. Pourgholamali, M. Kahani, E. Bagheri, Z. Noorian, Embedding unstructured side information in product recommendation, *Electronic Commerce Research and Applications* (2017), doi: http://dx.doi.org/10.1016/j.elerap.2017.08.001

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

Embedding Unstructured Side Information in Product Recommendation

Fatemeh Pourgholamali[a], Mohsen Kahani[a], Ebrahim Bagheri[b], Zeinab Noorian[b]

[a] *Web Technology Lab, Dept. of Computer Engineering, Ferdowsi University of Mashhad, Mashhad, Iran*
[b] *Laboratory for Systems, Software and Semantics (LS^3), Ryerson University, Toronto, Canada*

Abstract

Various researchers have already engaged in using auxiliary side information within recommender applications to improve the quality and accuracy of recommendations. This side information has either been in the form of structured information such as product specifications and user demographic information or unstructured information such as product reviews. The abundance of unstructured information compared to structured information entices the use of such unstructured information in the recommendation process. Existing works that employ unstructured content have been confined to standard text modeling techniques such as the use of frequency measures or topic modeling techniques. In this paper, we propose to model unstructured content about both products and users through the exploitation of word embedding techniques. More specifically, we propose to learn both user and product representations from any type of unstructured textual contents available in different external information sources using recurrent neural networks. We then apply our learnt product and user representations on two recommendation frameworks based on matrix factorization and link prediction to enhance the recommendation task. Experimental results on four datasets constructed from the Rotten Tomatoes website (movie review aggregator database) have shown the effectiveness of our proposed approach in different real-world situations compared to the state of the art.

Keywords: matrix factorization, user and product embeddings, recurrent neural networks, recommender systems

Download English Version:

https://daneshyari.com/en/article/4942524

Download Persian Version:

https://daneshyari.com/article/4942524

Daneshyari.com